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PREPAREDNESS OF BANKS TO BE COMPLIANT WITH THE CRITERIA FOR THE ADVANCED MEASUREMENT APPROACH: A SOUTH AFRICAN PERSPECTIVE

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Abstract

The New Basel Accord proposed qualitative and quantitative criteria for banks to use the Advanced Measurement Approach to calculate a capital charge for operational risk. The question now is how prepared are banks in South Africa? This article provides insight into relevant criteria, indicating the level of preparedness of banks for the Advanced Measurement Approach. An analysis based on results of a questionnaire, aimed at junior and middle management levels, indicated that banks are more compliant with qualitative than quantitative criteria. It also indicated a general lack of understanding of certain criteria. Should a bank want to implement the Advanced Measurement Approach, it is imperative that criteria be clear and that all role-players be knowledgeable about relevant systems and processes.

Keywords: Operational risk, Capital allocation, Risk management principles, Advanced Measurement Approach, Regulatory capital, Quantitative and qualitative risk management criteria,

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1. Operational risk

Banks play an important part in the global economy, which became clear during the recent global financial crisis where a number of banks were liquidated. These typical economic and financial shocks can happen again if banks cease to perform their central role in the economy, and it is therefore imperative that banks maintain their future growth. Wellink (2010) supports this statement by saying that since the banking sectors are at the centre of the credit intermediation processes and infrastructures, banks need to increase their long-term growth. In order to strive towards this goal, it is necessary that banks be aware of their risk exposures and how to mitigate these risks effectively. Operational risk is one of these risks that must be understood and managed. This requires a clear understanding of an acceptable definition of operational risk. According to the Basel Committee on Banking Supervision (2003), it is also critical that the definition considers the full range of material operational risks facing banks and that it captures the most significant causes of severe operational losses. In this regard, most South African banks accepted the Basel Committee's definition for operational risk, namely that it is the risk of losses due to inadequate or failed internal processes, people or systems or external events (Basel Committee on Banking Supervision 2005). In order to manage operational risk effectively in terms of this definition, most banks also adopted the primary principles for managing operational risk, which were identified by the Basel Committee (2003; 2004). These principles (illustrated in Figure 1) are divided into four main sections, namely:

- risk environment
- risk management process
- role of the supervisor (the South African Reserve Bank)
- role of disclosure

Each section consists of a set of principles that was formulated by the Basel Committee on Banking Supervision (Basel Committee on Banking Supervision, 2003).

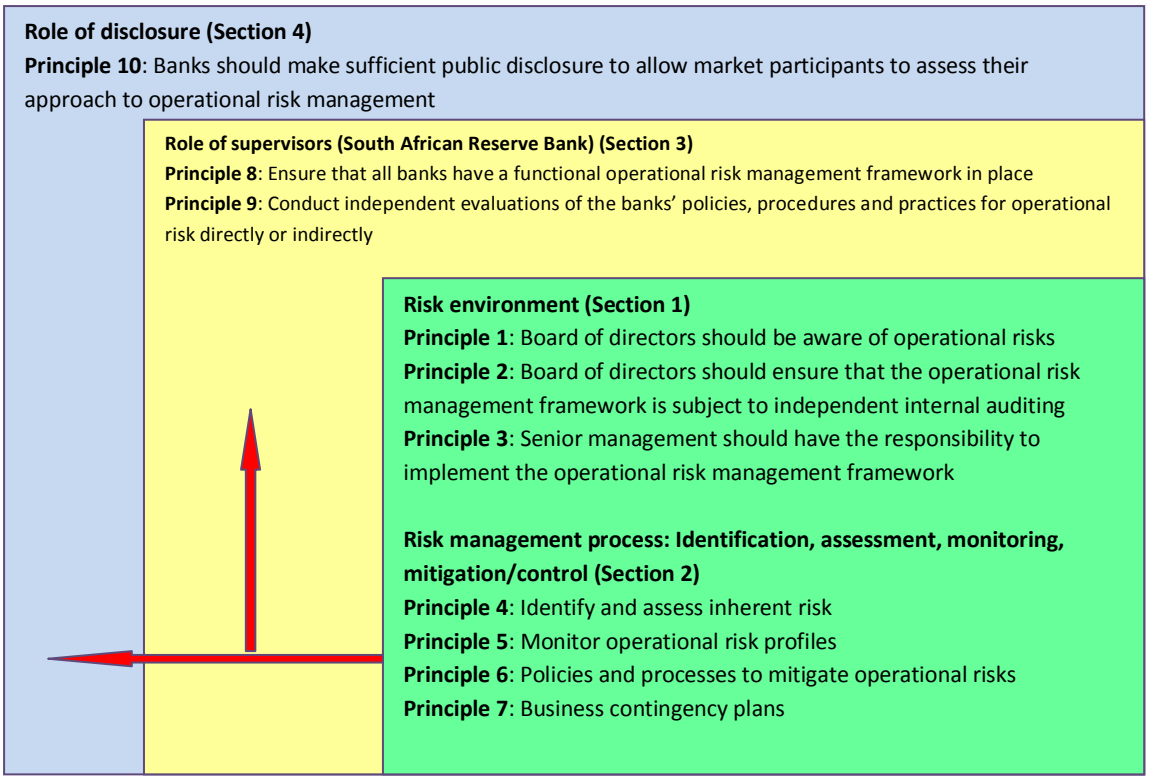

Figure 1. Principles for managing operational risk

Author's own interpretation based on the Basel Principles (Basel Committee on Banking Supervision, 2003)

According to the detail of the principles, it is apparent that it stipulate a holistic approach to operational risk management. The risk environment (Section 1), firstly, sets the ground rules for the involvement of the board of directors and senior management. An important aspect is the clarification of the role of internal audit, where it is clearly stated, "the internal audit function should not be directly responsible for operational risk management" (Basel Committee on Banking Supervision, 2003). The principles furthermore emphasise the empowerment of top management to ensure that an operational risk management framework is implemented.

Secondly, Section 2 of the principles deals with the risk management process, which starts with risk identification and assessment of the inherent risk exposures, which will lead to a risk profile that should be monitored continuously.

Principles 6 and 7 deal with the mitigation and controls of the risks by means of policies, procedures and contingency plans to ensure that the organisation can still operate after a major operational risk incident.

The role of the supervisor is emphasised in the third set of principles, stipulating the important role of a central bank to ensure that operational risks are managed by all banks.

Lastly (Section 4), the principles relate to the disclosure by a bank of their approach to manage operational risks. This approach requires that banks disclose their ability to manage operational risk to all market participants in order to allow these potential investors to determine a bank's efficiency in managing these risk exposures.

Operational risk has been around for a long time and has been closely monitored by banks, although factors such as fraud, client claims, internal control failures and system failures have been treated separately and differently. The Basel II approach endeavours to combine all these elements into an integrated management framework. In addition to the abovementioned management principles, which can be regarded as the platform for the management of operational risk management, Basel II proposed a three-pillar approach to manage operational risk. Pillars 2 and 3 relate directly to the principles concerning the role of supervisors and the role of disclosure respectively (Basel Committee on Banking Supervision, 2006). Figure 2 illustrates the relationship between the Basel II pillars and the management principles for operational risk. The 1st pillar, which is applicable for this article, refers to a regulatory capital allocation for operational risk.

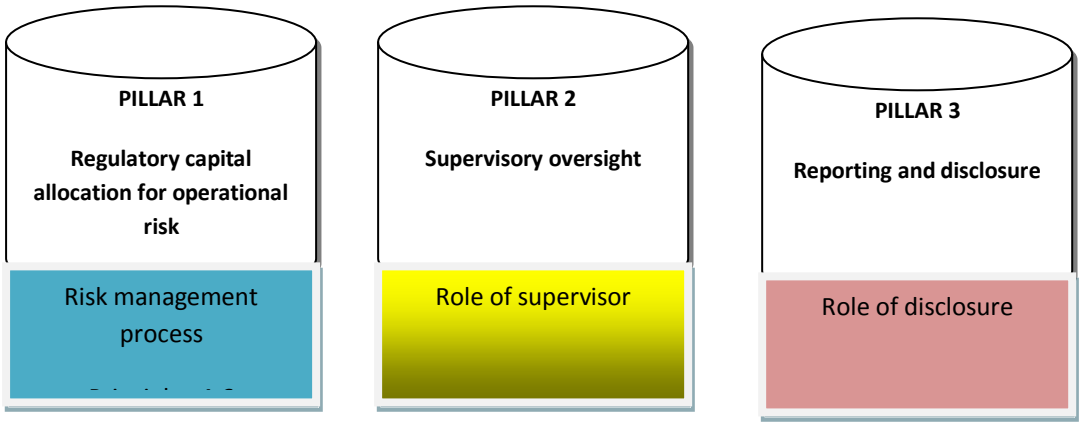

Figure 2. Relevance between the Basel II capital framework and the management principles for operational risk

Author's own interpretation based on the Basel Committee's capital requirements (Basel Committee on Banking Supervision, 2006)

In recent years, the Basel Committee on Banking Supervision aimed to secure international convergence on revisions to supervisory regulations governing the capital adequacy of internationally active banks (Basel Committee on Banking Supervision, 2006). Wellink (2010) states that the Basel Committee's Framework is implemented to address shortcomings by establishing a more flexible banking sector that can support long-term sustainable growth. According to the Institute of International Finance (2005), the implementation of Basel II will result in a stronger, more resilient banking system. The closer alignment of capital regulation with sophisticated internal processes could contribute to robust, mutually reinforcing internal risk management and external controls that will enable the system to accommodate constant financial innovation and therefore facilitate overall economic growth.

From an operational risk perspective and as part of the 1st pillar, the Basel Committee's Accord for capital allocation, permits three main optional approaches for calculating the minimum capital charges for operational risk in a continuum of increasing sophistication and risk sensitivity. These approaches allow banks to select an appropriate approach to calculate a capital charge for their operations. The approaches available to banks to calculate a capital charge for operational risk are:

- **The Basic Indicator Approach**. Banks using this approach must hold capital for operational risk equal to the average over the previous three years of a fixed percentage (denoted alpha) of positive annual gross income.
- **The Standardised Approach**. In terms of the Standardised Approach, banks' activities are divided into eight business lines: corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services, asset management, and retail brokerage (Basel Committee on Banking Supervision' 2006). Within each business line, gross income is a broad indicator that serves as a proxy for the scale of business operations and thus the likely scale of operational risk exposure within each of these business lines. The capital charge for each business line is calculated by multiplying gross income by a factor (denoted beta) assigned to that business line. Beta serves as a proxy for the industry-wide relationship between the operational risk loss experience for a given business line and its aggregate level of gross income (Basel Committee on Banking Supervision, 2006). It is clear from the way a capital charge is calculated that actual risk management plays a small role during the process and is therefore risk-insensitive. Therefore, this approach does not contribute to the actual management of operational risk exposures.
- **The Advanced Measurement Approach (AMA)**. Under the AMA, the regulatory capital requirement will equal the risk measure generated by the bank's internal operational risk measurement system using the quantitative and qualitative criteria for the AMA discussed below. The use of the AMA is subject to supervisory approval (the South African Reserve Bank) and it is therefore important that banks adhere to the qualitative and quantitative requirements.

It seems that most banks in South Africa (especially the four largest banks) are opting to implement the AMA to calculate a capital charge for operational risk. According to Lubbe and Snyman (2009), a reason for this might be that the AMA option is the most complex and refined approach, which also allows different banks to calculate their regulatory capital charge using the banks' internal measures. These measures are based on internal risk profiles and variables of the bank, which can ensure that the operational risks are identified and managed. The next section deals with the specific requirements of the AMA, which is the main focus of this article.

2. The Advanced Measurement Approach

The AMA allows, to some degree, risk sensitivity, as it is the only method that considers actual risk-mitigating techniques during the process of calculating a capital charge for operational risk. The other approaches are based on the gross income as a proxy to calculate a capital charge, which eliminates the effects of risk-mitigating techniques and methodologies. However, to comply with the AMA proved to be quite a challenge, as it requires a risk-modelling approach to be able to determine a value for unexpected losses for which capital must be allocated. According to Lubbe and Snyman (2009), the AMA necessitates the implementation of risk management processes that support accurate risk measurement, reporting and management systems. According to the Basel Committee on Banking Supervision (2006), a bank must adhere to certain criteria in order to use the AMA, which can be divided into general, qualitative and quantitative criteria, illustrated in Figure 3.

General criteria	
1. The board of directors and the senior management are actively involved in the overall process of the operational risk management framework. 2. The bank has implemented a theoretically sound operational risk management system with integrity	
Qualitative criteria	**Quantitative criteria**
4. There is an independent operational risk management function, responsible for the design and implementation of the operational risk management framework, including policies and procedures, measurement methodology, reporting system and operational risk management process. 5. The operational risk management system is closely integrated into the daily risk management processes of the bank. 6. The allocation of operational risk capital to major business lines. 7. Incentives to improve the management of operational risk. 8. Regular reporting of operational risk exposures and procedures for taking appropriate action. 9. The operational risk management system is well documented. 10. There is a routine in place for ensuring compliance with internal policies, controls and procedures. 11. Regular reviews of the operational risk management processes and measurement system by internal and external auditors.	1. Risk measurement system aligned with the loss event types. 2. Regulatory capital calculated as the sum of expected losses and unexpected losses. 3. The measurement system is granular to capture the tail losses. 4. Use of internal data reflects the business environment and internal control systems. 5. Use of relevant external data reflects the business environment and internal control systems. 6. Use of scenario analysis reflects the business environment and internal control systems. 7. A credible, transparent and well-documented and verifiable approach for weighting fundamental elements is used to calculate a capital charge for operational risk.

Figure 3. Criteria for the use of AMA by banks

Source: Adapted from the Basel Committee on Banking Supervision (2006)

Although most of these requirements may seem straightforward, it is not always the case and each requirement needs to be analysed in detail and to be clearly understood in order to determine the implications of implementation. Another important factor that should be considered is the level of knowledge and skills of those employees responsible for implementing these requirements. Usually, implementation of new processes and systems involves employees operating at junior and middle management. It is therefore important that these employees understand the processes and systems and have the required skills to implement it according to the required requisites. Similarly, it is imperative that junior employees be knowledgeable and skilled to implement the Basel criteria. This could be a determining factor in the state of preparedness of a bank to implement the Basel criteria for the AMA to calculate a realistic capital charge for operational risk. If a bank is fully prepared to implement the AMA criteria, there are a

number of benefits, which could be enjoyed such as:

- a positive impact on the perception and reputation of the bank by its stakeholders;
- a more advanced and sophisticated risk management system, which sends a clear message to all shareholders and stakeholders of which the bank is serious to manage their risk exposures;
- the effective implementation of internal measures that may lead to a reduction in economic and regulatory capital; and
- an improved risk management approach and process.

However, it is crucial that the implementation of the AMA in a banking system is carefully planned and implemented. For instance, banks must make sure that every employee from top, middle to junior management is well informed, aware, trained and skilled to implement the AMA. Following on this the next section deals with an empirical analysis of the status of banks to implement the AMA criteria.

3. Research methodology

In order to determine the current preparedness and knowledge base of bank employees to implement the AMA with the aim to manage operational risk, it was decided to use a questionnaire to collect information. The target group was identified as junior and middle managers of a large bank in South Africa. The respondents mostly consisted of risk managers and business managers who represented the important role players involved in managing a bank's operational risks. The reason for using this target group was furthermore based on the fact that it is usually at this level where processes and systems are physically implemented and where the success of new implementations is determined. Therefore, the response can be accepted as a reasonable reflection of the status of AMA implementation by the bank. As the identified bank is one of the largest banks in South Africa, the response can, to a degree, be accepted as representative of the general banking industry in South Africa.

The aim of the questionnaire was, firstly, to introduce the seventeen primary criteria of the AMA, which were deduced from the criteria listed in Figure 3 and divided into qualitative and quantitative criteria. The questionnaire included the AMA criteria illustrated in Figure 3 above.

The questionnaire requested respondents to indicate on a 4-point Likert scale their views and experiences regarding specific questions on the status of the compliance of the bank with the AMA criteria. The response was analysed in terms of descriptive statistics according to the following scale:

1. Fully compliant
2. Partly compliant
3. Not compliant
4. Do not understand the criteria

In the rare case of a respondent not selecting one of the four options, it was assumed that he or she did not understand the criteria.

4. Research results

A questionnaire was distributed to a population of 50 junior and middle managers of the identified bank. A total of 19 questionnaires were returned on the due date which represented a 38% response rate.

The results from the questionnaires indicating the overall compliance with the qualitative criteria are reflected in Figure 4.

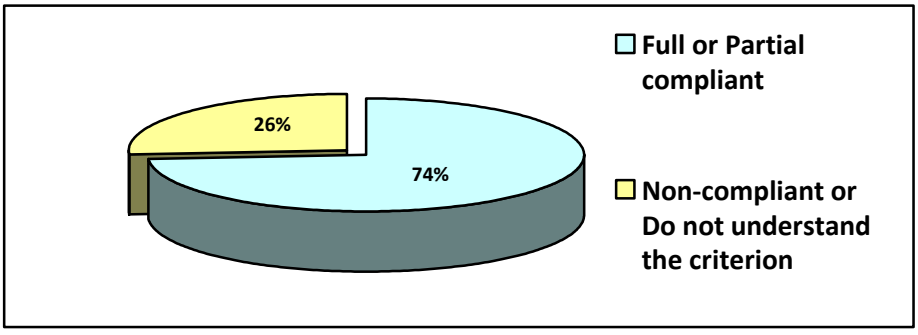

Figure 4. Compliance with qualitative criteria

According to the results of the response, it can be concluded that 26% of the managers viewed the status of the bank as being non-compliant with the qualitative criteria of the AMA, while 74% indicated that the bank was compliant to a full or partial degree.

Figure 5 illustrates the overall compliance with the quantitative criteria, which indicates 52% non-compliance and 48% compliance with the AMA criteria.

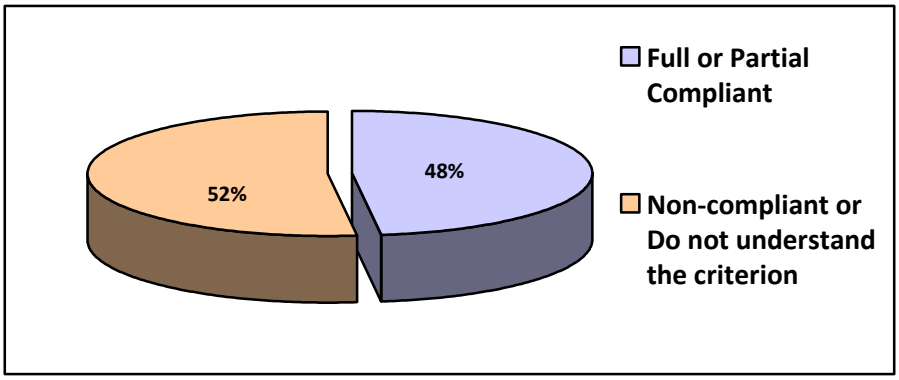

Figure 5. Compliance with quantitative criteria

In comparing the response for the qualitative and quantitative criteria, it is clear that the bank is more prepared to comply with the qualitative AMA criteria than with the quantitative criteria.

A more detailed analysis of the response of the qualitative criteria (see Figure 6) indicates that the bank is fully compliant with 32% and partially compliant with 42% of the criteria. Only 12% of the criteria are non-compliant. However, 14% of the response indicated that respondents did not understand the criteria, which could be an indication that there is a lack of knowledge and/or skill to implement some of the criteria.

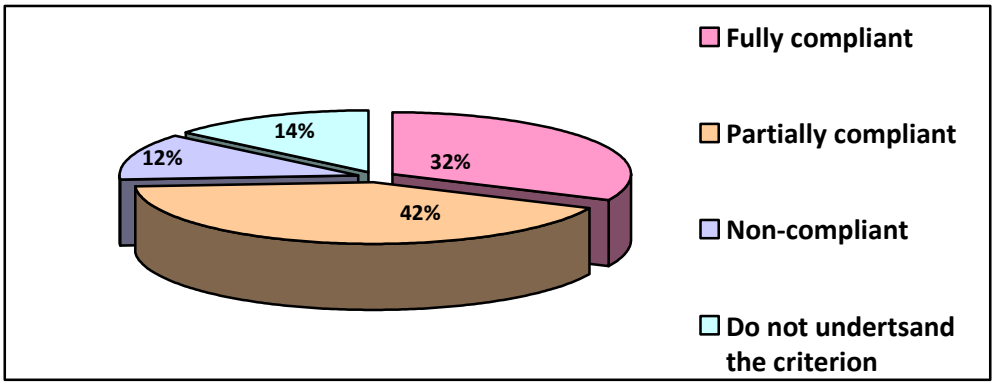

Figure 6. Detailed analysis of compliance with qualitative criteria

A similar analysis of the quantitative criteria (see Figure 7) shows that 13% and 35% of the criteria were being fully complied with and partially complied with, respectively. However, a 42% response indicated that the detail of the criteria was unknown or unfamiliar. This illustrates that there is a definite lack of knowledge and resultant skills to implement some of the quantitative AMA criteria.

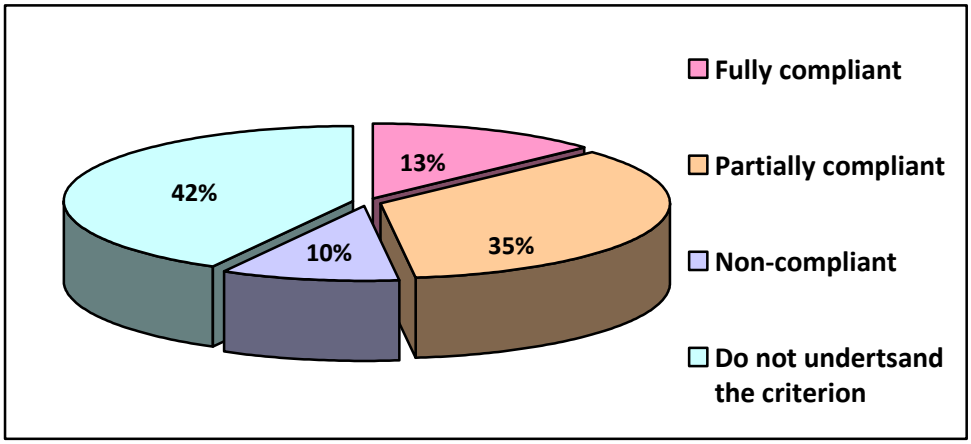

Figure 7. Detailed analysis of compliance with quantitative criteria

When analysing the detail of the qualitative and quantitative criteria per question (see Figures 8 and 9 respectively), the most important conclusion is on the non-understanding of various criteria, which indicates specific focus areas for banks in preparing to be AMA compliant. From a qualitative perspective, the following criteria require attention:

- Question 7: Incentives to improve the management of operational risk
- Question 12: Validation of the operational risk measurement system by supervisory bodies

However, both these criteria involve action from top management and the supervisory body (the South African Reserve Bank), and should therefore not have a negative influence on the bank being compliant with the AMA criteria.

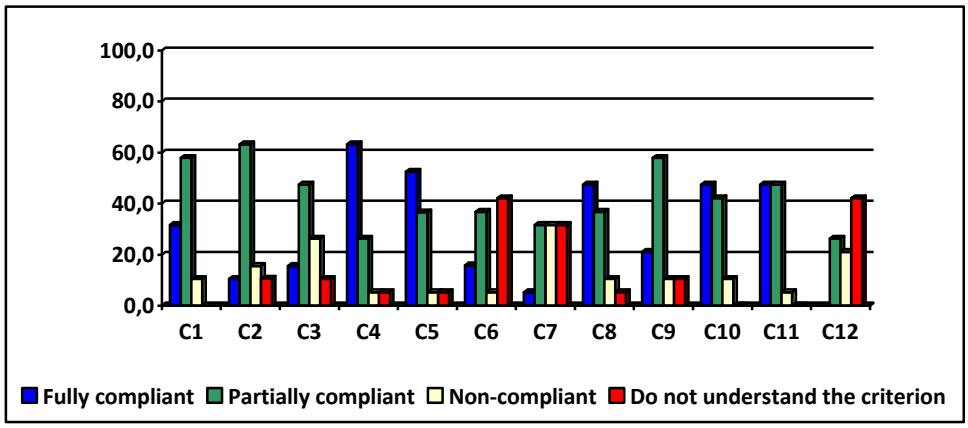

Figure 8. Detailed analysis of compliance with qualitative criteria per criterion (Criterion 1 – 12)

According to the quantitative criteria, the following questions on the criteria were indicated as potential focus areas to be compliant with the AMA:

- Question 2: Calculate regulatory capital as the sum of expected and unexpected losses
- Question 3: The measurement system is granular to capture tail losses
- Question 5: Use of relevant external data reflects the business environment and internal control systems
- Question 6: Use of scenario analysis reflects the business environment and internal control systems
- Question 7: A credible, transparent and well-documented and verifiable approach for weighting fundamental elements is used to calculate a capital charge for operational risk

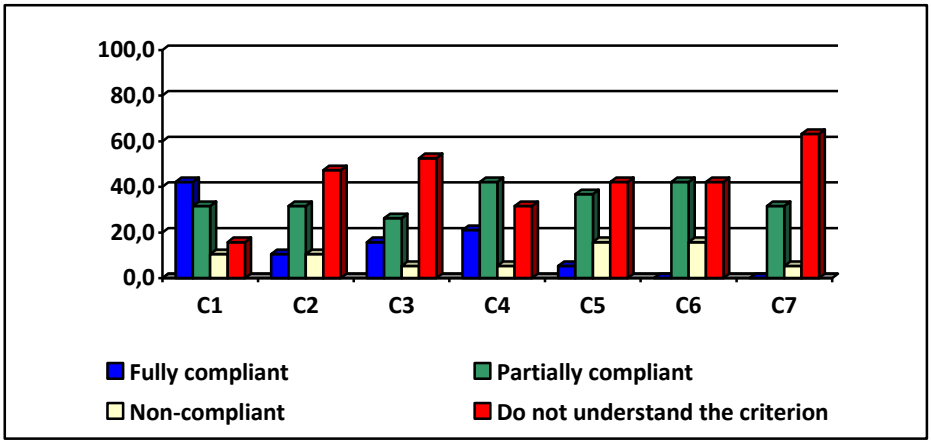

Figure 9. Detailed analysis of compliance with quantitative criteria per criterion (Criterion 1 – 7)

Regarding question 2, the Basel Committee on Banking Supervision (2006) states that a bank's measurement system must be able to estimate unexpected losses based on a combined use of internal and relevant external loss data, scenario analysis and bank-specific business environment and internal control factors. The system must therefore be capable of supporting an allocation of economic capital for operational risk across business lines in a manner to improve operational

risk management. According to the response, 42% of the respondents indicated that this criterion is unclear. Firstly, the criterion indicates that a bank's measurement system must estimate unexpected losses, and secondly, it calculates capital for operational risk. Both these activities are directly linked to calculating capital for operational risk, which makes it an important part of the AMA. It is therefore crucial that this criterion is clearly understood and incorporated into the risk management processes of a bank.

Question 3 related to the capturing of "tail" losses. These losses are usually in the category of high impact/low frequency loss incidents and are indicated in the "tail" of a typical loss distribution curve. According to the Basel Committee on Banking Supervision (2006), a bank must be able to demonstrate that its approach captures potentially severe "tail" loss events. According to 50% of the response, this criterion was not clear and therefore should be clarified as part of being prepared to comply with the AMA requirements.

According to the Basel Committee on Banking Supervision (2006), a bank's operational risk measurement system must use relevant external data when there is a reason to believe that the bank is exposed to infrequent, yet potentially severe, losses. These external data should include data on actual loss amounts, on the scale of business operations where the event occurred, and on the causes and circumstances of the loss events. According to the response, 30% of the respondents indicated that they were not familiar with this criterion, which illustrates that this criterion should also be considered during the implementation process of the AMA. According to the criteria a bank must have a systematic process for determining situations for which external data must be used. The conditions and practices for external data use must be documented and subject to periodic independent review (Basel Committee on Banking Supervision, 2006).

The AMA criteria also stipulate that a bank must use a scenario analysis of expert opinion in conjunction with external data to evaluate their exposure to high-impact events. According to the Basel Committee on Banking Supervision (2006), the scenario analysis approach draws on the knowledge of experienced business managers and risk management experts to derive reasoned assessments of severe losses. Scenario analysis should, furthermore, be used to assess the impact of deviations from the correlation assumptions embedded in the bank's operational risk measurement framework to evaluate potential losses. It is clear that scenario analysis forms an integral part of the AMA and, according to the response, 40% of the respondents indicated that this criterion was still unfamiliar to them. As such, it is recommended that the use of scenario analysis during the operational risk management process be carefully planned and embedded to be AMA compliant.

According to the respondents, 60% indicated that they did not understand the criterion for question 7 was unknown. According to the Basel Committee on Banking Supervision (2006), to qualify for regulatory capital purposes, and in addition to using loss data, a bank's firm-wide risk assessment methodology must capture key business environment and internal control factors that can influence their operational risk profile. These factors will add value to a bank's risk assessment in that it will be forward-looking and reflect the bank's quality of risk management objectives. To qualify for regulatory capital purposes, these factors must meet the following criteria:

- Each factor must be justified as a meaningful driver of risk, based on experience and involving expert judgment and, where possible, be measurable.
- The sensitivity of a bank's risk estimates to changes in the factors and the relative weighting of the various factors need to be well reasoned. The framework must be able to capture potential increases in risk due to a complexity of activities and/or business volume.
- Over time, the process and the outcomes need to be validated through comparison to actual internal loss experience and relevant external data, which must lead to adjustments where required (Basel Committee on Banking Supervision, 2006).

It is clear that this criterion is an important part of the AMA and therefore requires the attention of a bank in preparing to be compliant with the AMA requirements.

Final conclusions and recommendation based on the above empirical analysis will be summarised in the next section.

5. Conclusion

Operational risk management should be an integral part of a bank's management strategy, especially now that the South African Reserve Bank is following suit in regulating risk management. These regulatory requirements are based on the risk management principles of the Basel Committee on Banking Supervision as well as the three-pillar framework to allocate a capital charge for operational risk (the Basel Capital Accord for Operational Risk). The AMA is currently the best approach as it incorporates a form of risk sensitivity. The significance of risk sensitivity is that the actual risk exposures must be managed according to specific criteria and standards, before a capital amount can be accepted as a capital charge.

As such, it will add value to the calculation of a realistic capital allocation for operational risk. However, the development and implementation of these guiding principles and criteria for the AMA are not clear-cut and could be problematic for some banks. Therefore the purpose of the research on which this article is based was to determine how prepared South African banks are to use the AMA to calculate a capital charge for operational risk, specifically from a knowledge and skills perspective in terms of those employees who have to implement the criteria.

The article provided some insight into the principles for managing operational risk proposed by the Basel Committee on Banking Supervision. Four sets of principles were identified, forming a platform for a sound operational risk management framework, namely:

- the risk environment;
- the risk management process;
- the role of supervisors (the South African Reserve Bank); and
- the role of disclosure.

Based on these four sets of principles, the Basel Committee proposed a three-pillar approach for risk management. The first pillar concerns the allocation of a regulatory capital charge for operational risk, using three methods, namely the Basic Indicator Approach; the Standardised Approach and the Advanced Measurement Approach.

Most banks are striving towards the AMA, which requires banks to adhere to specific qualitative and quantitative criteria. These principles were used to construct a questionnaire to collect information for an empirical analysis on the overview of the preparedness of banks to comply with these criteria in order to be Basel II compliant for operational risk. The questionnaire was constructed in such a way that it allowed for conclusions on the level of knowledge of the criteria by junior and middle managers.

According to the results of the empirical analysis, the following main conclusions were made:

- Banks seemingly tend to be more compliant with the qualitative criteria than with the quantitative criteria for the AMA.
- Junior and middle managers seem to be knowledgeable about the qualitative criteria, but apparently, there is a lack of knowledge regarding the quantitative criteria.
- The criteria, which were indicated as the most problematic, seemed to be related to the determining of a capital charge for operational risk. As the main objective of the AMA is to determine a realistic capital charge for operational risk, the high level of unpreparedness of these criteria could be a concern for banks.

Founded on the findings of the analysis, the following recommendations can be useful for banks to consider when developing and implementing the criteria for the AMA:

- More attention should be given to develop and embed the quantitative criteria when opting for the AMA to calculate a capital charge for operational risk. Specific attention could be given to the following:
  - the system for capturing of "tail" loss events;
  - the use of relevant external loss data;
  - the use of scenario analysis during the assessment of the impact of potential risk events; and
  - the actual calculation of a capital charge for operational risk.
- Junior and middle management should receive training in order to ensure that they are knowledgeable about the principles and criteria for managing operational risk. This could include theoretical training and practical development of skills to implement and use the operational risk management systems and processes. This can be regarded as a crucial element in the successful implementation of the AMA.

The analysis was restricted to and based on a limited number of junior and middle managers of one major bank in South Africa. Consequently, any generalised deductions and conclusions could not be applicable to the whole banking industry of South Africa. Therefore, it is recommended that this article be used as a starting point and guideline for more detailed research regarding the various practical aspects of the criteria for applying the AMA.

Notwithstanding the limitations of this article, it is crucial that banks ensure that sound principles and criteria for managing operational risk be embedded and that all involved employees are knowledgeable and therefore prepared to manage the operational risk exposures within the ambit of the regulatory (Basel II) requirements.

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